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Claim 6 (once amended).

A method of producing a mammal [having a predetermined sex] as described in claim 3 wherein said female of said species of said mammal has at least one uterine horn and wherein said step of inserting said [sorted] insemination sample into said female of said species of

determination of said sex characteristic [comprise the steps of:

- a. establishing a cell source which supplies sperm cells to be sorted;
- b. chemically coordinating a sheath fluid to create a sheath fluid environment for said sperm cells which is coordinated with both a pre-sort and a post-sort sperm cell fluid environment;
- c. sensing a property of said sperm cells;
- d. discriminating between said sperm cells having a desired sex characteristic; and
- e. collecting said sperm cells having the desired sex characteristic].

Claim 15 (once amended).

A method of producing a mammal [having a predetermined sex] as described in claim 14 wherein said step[s of determining the sex characteristic of a plurality of said sperm cells and sorting] separating said sperm cells according to the determination of their sex characteristic comprises the steps of:

- a. establishing a sperm cell source which supplies [bovine] sperm cells to be [sorted] separated;
- b. establishing a sheath fluid for said bovine sperm cells which contains about 2.9% sodium citrate;]
- b/c. sensing a property of said [bovine] sperm cells;
- c.d. discriminating between said [bovine] sperm cells having a desired sex characteristic; and
- d/e. collecting said [bovine] sperm cells having the desired sex characteristic.

Claim 16 (once amended).

A method of producing a mammal [having a predetermined sex] as described in claim 15 wherein said steps of [determining the sex characteristic of a plurality of said sperm cells and sorting] separating said sperm cells according to the determination of their sex characteristic further comprises the steps of:

- a. [establishing a cell source which supplies equine sperm cells to be sorted] providing a flow cytometer;

- b. establishing a sheath fluid for said [equine] sperm cells [which contains a hepes buffered medium];
- [c. sensing a property of said equine sperm cells;
- d. discriminating between said equine sperm cells having a desired sex characteristic;]
- and
- e. collecting said [equine] sperm cells having the desired sex characteristic.

Claim 17 (once amended).

A method of producing a mammal [having a predetermined sex] as described in claim 16 wherein [said steps of determining the sex characteristic of a plurality of said sperm cells and sorting said sperm cells according to the determination of their sex characteristic comprise the steps of]

- a. establishing a cell source which supplies sperm cells to be sorted;
- b. establishing a sheath fluid for said sperm cells;
- c. sensing a property of said sperm cells;
- d. discriminating between said sperm cells having a desired sex characteristic; and
- e.] collecting said sperm cells having the desired sex characteristic [while] further comprises the step of cushioning said sperm cells from impact with a collector [wherein a cushioning element comprises initial collection fluid in the bottom of said collector and wherein said collector has a configuration sufficiently large to avoid impact of said sperm cells with said collector].

Claim 18 (once amended).

A method of producing a mammal [having a predetermined sex] as described in claim 16 wherein said step[s] of [determining the sex characteristic of a plurality of said sperm cells and sorting said sperm cells according to the determination of their sex characteristic comprise the steps of:

- a. establishing a cell source which supplies sperm cells to be sorted;
- b. establishing a sheath fluid for said sperm cells;

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- a.] staining sperm cells of a male mammal with at least about 38 micro-molar content of stain[;
- b. sorting said sperm cells of said male mammal at a rate of at least 500 sorts per second; and
- c. concentrating said sorted sperm cells of said male mammal].

A method of producing a mammal having a predetermined sex as described in claim 16 [where said step of determining the sex characteristic of a plurality of said sperm cells comprises the step of staining said cells with a 38 micro-molar concentration of stain] further comprising the step of chemically coordinating a sheath fluid environment for sperm cells which is coordinated with both pre-sort and post-sort sperm cell fluid environments.

A method of producing a mammal [having a predetermined sex] as described in claim 1, 2, 14, 15, 16, 17 or 18 [and further comprising the step of chemically coordinating a sheath fluid environment for sperm cells which is coordinated with both pre-sort and post-sort

sperm cell fluid environments] wherein collecting sperm cells from a male of a species of mammal comprises collecting said sperm cells from a male of a species selected from the group consisting of bovines, and equines.

Claim 26 (once amended).

A method of producing a mammal [having a predetermined sex] as described in claim 25 wherein said step of chemically coordinating a sheath fluid to create a sheath fluid environment for said sperm cells which is coordinated with both a pre-sort and a post-sort cell fluid environments comprises the step of establishing a cell source which supplies bovine sperm cells and the step of establishing a sheath fluid which contains about 2.9% sodium citrate.

Claim 27 (once amended).

A method of producing a mammal [having a predetermined sex] as described in claim 25 wherein said step of chemically coordinating a sheath fluid to create a sheath fluid environment for said cells which is coordinated with both a pre-sort and a post-sort cell fluid environment comprises the step of establishing a cell source which supplies equine sperm cells and the step of establishing a sheath fluid which contains a hepes buffered medium.

Claim 28 (once amended).

A method of producing a mammal [having a predetermined sex] as described in claim 16 wherein said step of [sorting said sperm cells according to the determination of their sex characteristic] collecting said sperm cells having the desired sex characteristic further comprises the step of [cushioning said cells from impact with a collector wherein cushioning said sperm cells comprises collecting said sperm cells into an initial collection fluid in the bottom of said collector and wherein said collector has a configuration sufficiently large to] avoiding impact of said sperm cells with said collector.

Claim 29 (once amended).

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Claim 183 (newly added).

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1. The first step is to identify the problem. This involves understanding the current situation and what needs to be changed.

168/
Claim 186 (newly added).
A method of producing a mammal as described in claim 185 further comprises the step of sorting said sperm at a rate of at least 1200 sorts per second.

11

selected from the group consisting of: a bovine insemination sample of no more than one hundred thousand sperm cells, a bovine insemination sample of no more than two hundred fifty thousand sperm cells, a bovine insemination sample of no more than three hundred thousand sperm cells, an equine insemination sample of no more than one million sperm cells, an equine insemination sample of no more than five million sperm cells, an equine insemination sample of no more than ten million sperm cells, and an equine insemination sample of no more than twenty-five million sperm cells.

170
Claim 188 (newly added).

A method of producing a mammal as described in claim 4 wherein said steps of inserting at least a portion of said insemination sample into a female species of said mammal and fertilizing at least one egg within said female species of said mammal at success levels statistically comparable to the typical unsexed artificial insemination dosage in a field environment comprises the steps of repetitively inserting a significant number of insemination samples into a significant number of female specie of said mammal in rapid succession and in farm or ranch conditions.

171
Claim 189 (newly added).

A method of producing a mammal as described in claim 14 wherein said step of inserting said insemination sample having said low number of said sperm cells into a female of said species of said mammal comprises inserting an insemination sample having a low number of sperm a substantial portion of which have the desired sex characteristic.

172
Claim 190 (newly added).

A method of producing a mammal as described in claim 189 wherein said step of inserting an insemination sample having a low number of sperm, wherein a substantial portion of said sperm have the desired sex characteristic comprises selecting said insemination sample having a low number of sperm from a group consisting of an insemination sample having a low number of sperm, wherein at least 60 percent of said sperm have the desired sex